



Strathmore Institute of Mathematical Sciences
BBS FE/FIN
SPECIAL EXAMINATION
BSE 2208: MACROECONOMICS II

DATE: MARCH 2018

Time: 2Hrs

Instructions

- This examination consists of FIVE questions.
 - Answer Question ONE (COMPULSORY) and any other TWO questions.
1. (a) Consider a macroeconomy that only produces two goods, A and B. the base year is 2015 and all quantities are measured in billions. Round all your answers to the nearest tenth.

Product	Quantity in 2015	Quantity in 2016	Price in 2015	Price in 2016
A	100	105	Kes.20	Kes.20
B	50	52	Kes.100	Kes.105

- (i) Calculate the real GDP(Y) growth rate in 2016.(4 Marks).
- (ii) Calculate the inflation rate (π) in 2016 using the GDP deflator. (3 Marks)
- (b) Consider a closed economy described by the following equations;

$$Y = C + I + G$$

$$Y = 4,000$$

$$T = 1,000$$

$$G = 1250$$

$$C = 500 + \frac{2}{3}(Y - T)$$

$$I = 600 - 50r$$

- (i) In this economy, compute private saving, public saving, and national savings (6 Marks)

- (ii) Find the equilibrium interest rate **(6 Marks)**
- (c) Suppose the Kenyan government in a bid to increase tax revenue introduces a 2 shillings tax on checks written on bank account deposits;
- (i) Explain how this check tax will affect the currency-deposit ratio **(2 Marks)**
- (ii) Using a simple model of money supply under fractional-reserve banking discuss how this tax will affect money supply **(3 Marks)**
- (d) Determine whether each of the following statements is true or false, and explain why. For each statement, discuss the impact of monetary and fiscal policy in that special case.
- (i) If investment does not depend on the interest rate, the LM curve is horizontal **(3 Marks)**.
- (ii) If money demand does not depend on income, the LM curve is horizontal **(3 Marks)**.
- (e) Recall the quantity theory of money. Suppose the Central Bank reduces the money supply and assume the velocity of money is constant. What happens to the AD curve? What is the intuition? **(4 Marks)**
2. (a) The electioneering events of 2017 in Kenya caused households and business to be uncertain about the future of the Kenyan economy. In response, households/business delayed large purchases/projects until the situation calmed and a new presidential administration was in place. Use the AD-SRAS-LRAS diagram to discuss the predicted short-run and long-run impacts on the price level, real GDP and unemployment of these events **(7 Marks)**
- (b) Explain what is meant by concept of the “impossible trinity” and why it is accurate? **(8 Marks)**
- (c) In the Mundell-Fleming model with a floating exchange rate, what happens to aggregate income, the exchange rate, and the trade balance when the world interest rate rises? Illustrate your answer with a well labeled graph **(5 Marks)**
3. (a) Consider the following Neoclassical model of a closed economy, where r is in percentage terms.

Supply	Demand
$Y = F(K, L) = K^{1/3}L^{2/3}$	$C = 10 + 0.9(Y - T)$
$K=125; L=64$	$I = 12 - 2r$
	$G = 5, T = 10$

- (i) What is the level of GDP in the economy? How much of national income goes to workers and how much goes to the owners of capital? show your work. **(4 Marks)**.
- (ii) Find the interest rate that produces equilibrium in the goods market. **(4 Marks)**.
- (b) Explain how each of the following events affects the monetary base, the money multiplier, and the money supply.

- (i) The central bank of Kenya increases the interest rate it pays banks for holding reserves(**1.5 Marks**).
 - (ii)) Rumors about a computer virus attack on ATMs increase the amount of money people hold as currency rather than demand deposits.(**1.5 Marks**).
 - 1. Explain the advantages and disadvantages of floating exchange rates
4. (a) Consider an economy with the following data:

$$C = 125 + 0.75(Y - T)$$

$$I = 200 - 10r$$

$$T = 100$$

$$\text{Nominal money supply); } M = 800$$

$$\text{(Real money demand); } L(Y, r) = 0.8Y - 16r$$

Please note that government purchases and initial price level are some constant G and P respectively. Exports are equal to imports. Assume that the full-employment level of output equals 1600.

- (i) Derive the IS curve (**3 Marks**).
 - (ii) Derive the LM curve (**3 Marks**).
 - (iii) Calculate the short-run equilibrium for this economy. Assume $G = 150$ and $P = 1$ (**3 Marks**).
- (b) In an open economy, fiscal policy is more effective than (or at least as effective as) monetary policy (in terms of changing output). Discuss(**6 Marks**)
- (c) Briefly explain the Ricardian view of government debt (**5 Marks**)
5. (a) Suppose that the production function in a given country is given by:

$$Y_t = F(K_t, A_t L_t) = K_t^\alpha (A_t L_t)^{1-\alpha}$$

. Where Y_t is total output at time t , K_t is the level of capital, A_t is the level of technology, L_t is labour force and $0 < \alpha < 1$ is a constant.

- (i) Denote with $y_t = \frac{Y_t}{A_t L_t}$ the output per effective labor. Using the production function show that $y_t = k_t^\alpha$ where k_t is capital per effective labour; (**3 Marks**)
 - (ii) Denote with s the constant saving rate, with n the growth rate of labour force, with g the growth rate of technology and with σ the capital depreciation rate. Write down the capital accumulation equation and derive the steady state level of capital **8 marks**).
 - (iii) Suppose that $s = 0.2$, $\sigma = 0.05$, $n = 0.01$, $g = 0.03$ and $\alpha = 0.3$. Find the value of capital per effective labour and output per effective labour in steady state. (**5 Marks**)
- (b) Suppose that an economy has the Philips curve

$$\pi = \pi_{-1} - 0.5(u - 5)$$

How much cyclical unemployment is necessary to reduce inflation by 4 percentage points? Using Okun's law compute the sacrifice ratio. (**4 Marks**)